



## The marine and estuarine shrimps of the Palaemoninae (Crustacea: Decapoda: Caridea) from Brazil

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### Abstract

This study presents the current taxonomic and distributional information of the marine and estuarine species of Palaemoninae subfamily of the Brazilian coast, totaling 13 species. It is also provided an identification key for the species.

**Key words:** Caridea Palaemonidae, Palaemoninae, taxonomy, identification key, Brazil

### Introduction

The family Palaemonidae Rafinesque, 1815 is one of the most representative and successful of the Infraorder Caridea Dana, 1852, being distributed for all the continents, in tropical and temperate regions, having representatives in marine, brackish and freshwater (Holthuis, 1952; Bauer, 2004). Presently, 60 species occur in Brazil, of which, 40 belong to the subfamily Palaemoninae Rafinesque, 1815 and 20 belong to the subfamily Pontoniinae Kingsley, 1878.

Of the species of subfamily Palaemoninae, 13 are the focus of the present study, for being marine or estuarine. The studied genera are: *Brachycarpus* Bate, 1888; *Leander* Desmarest, 1849; *Macrobrachium* Bate, 1868; *Nematopalaemon* Holthuis, 1950a; *Palaemon* Weber, 1795 and *Palaemonetes* Heller, 1869. The marine species are: *Brachycarpus biunguiculatus* (Lucas, 1849); *B. holthuisi* Fausto-Filho, 1966; *Leander paulensis* Ortmann, 1897; *L. tenuicornis* (Say, 1818); *Nematopalaemon schmitti* (Holthuis, 1950b); *Palaemon northropi* (Rankin, 1898); *P. paivai* Fausto-Filho, 1967 and *P. ritteri* Holmes, 1895. The estuarine ones are: *Macrobrachium acanthurus* (Wiegmann, 1836); *M. carcinus* (Linnaeus, 1758); *M. olfersii* (Wiegmann, 1836), *Palaemon pandaliformis* (Stimpson, 1871) and *Palaemonetes argentinus* Nobili, 1901. The estuarine species generally live in freshwater when adults, but as the larval phase occurs in brackish water, the distribution of the species is restricted to rivers that flow directly to the sea (Mossolin & Bueno, 2002).

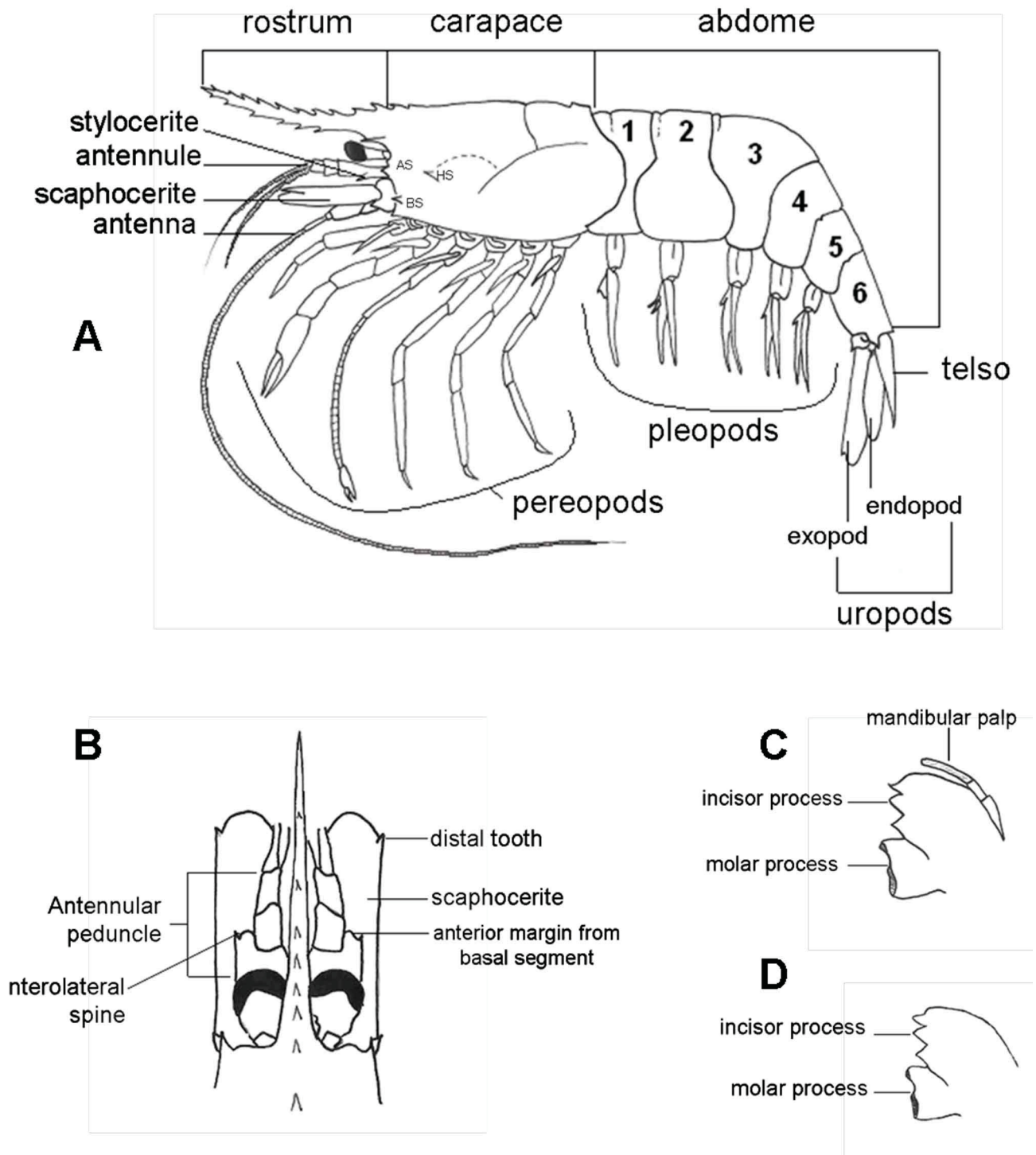
This study provides the current taxonomic and distributional information of the marine and estuarine species of the subfamily Palaemoninae of the Brazilian coast; as well as providing an identification key for the species. Such works are important tools for biogeographers, taxonomists and ecologists. Among other aspects, this may provide the basis for quick comparisons of species richness between geographic areas and will provide the baseline for the detection of new species in the future.

### Material and methods

We studied the shrimps of the subfamily Palaemoninae inhabiting Brazilian coast, i.e. from the mouth of Oiapoque (4°08'N, 51°40'W) to the Arroio Chuí (33°41'S, 53°27'W). The examined material is deposited in

the collections of the following Brazilian Research Institutes: FURG – Federal University of Rio Grande, Crustacean Collection at the Oceanography Institute; MNRJ – National Museum, Rio de Janeiro; MZUSP – University of São Paulo, Museum of Zoology, São Paulo. The species *Brachycarpus holthuisi* Fausto-Filho, 1966 is not represented in the carcinological collections examined.

The diagnosis was based on the morphological characters (Figs. 1, 2) of the carapace, antennule, scaphocerite, mandible, abdomen, pereopod, pleopod and telson.



**FIGURE 1.** Schematic drawings of a Caridea. A) Lateral view (AS: antennal spine; BS: branchiostegal spine; HS: hepatic spine) (modified from Crosnier & Forest, 1973); B) Dorsal view; C) Mandible with palp; D) Mandible without palp (B, C and D modified from Bond-Buckup & Buckup, 1999).

## Systematic account

### Family Palaemonidae Rafinesque, 1815

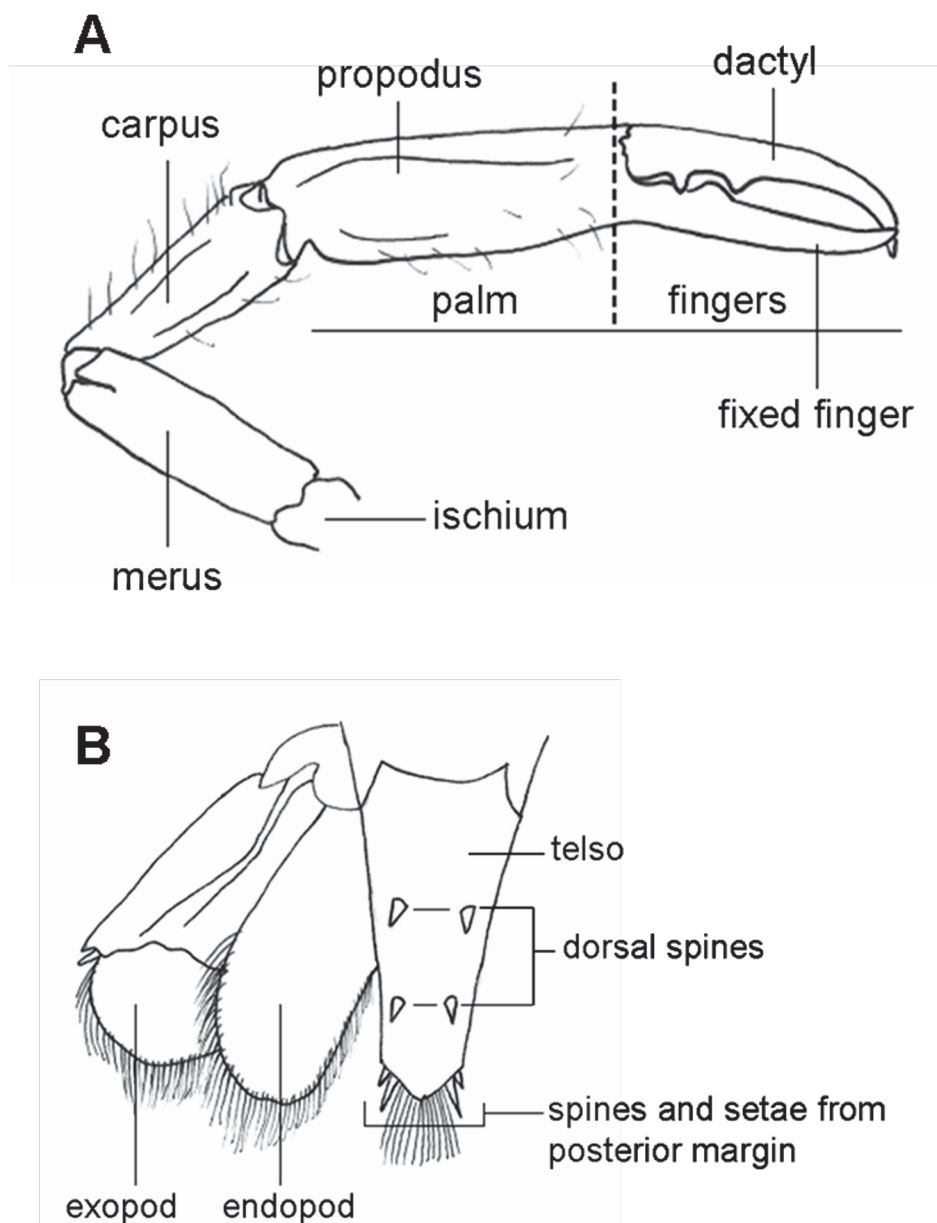
#### Subfamily Palaemoninae Rafinesque, 1815

**Diagnosis.** Pleurobranch present on third maxilliped. Posterior margin of telson with two pairs of spines and generally one or more pairs of setae (modified from Holthuis, 1951).

#### *Brachycarpus* Bate, 1888

*Brachycarpus* Bate, 1888: 795; Holthuis, 1952: 2; Cardoso, 2006: 26; Cardoso & Young 2007: 285.

**Diagnosis.** Rostrum with teeth on dorsal and ventral margins. Carapace with antennal and hepatic spines. Mandibular palp with three articles. Maxillipeds with exopods. Dactyli of pereopods 3 to 5 bifid. Telson with two pairs of dorsal spines and two pairs of spines on the posterior margin.



**FIGURE 2.** Schematic drawings of the parts of a Palaemonidae. A) Second left pereopod; B) Telson and uropods (A and B modified from Melo, 2003).

***Brachycarpus biunguiculatus* (Lucas, 1849)**

*Palaemon biunguiculatus* Lucas, 1849: 45.

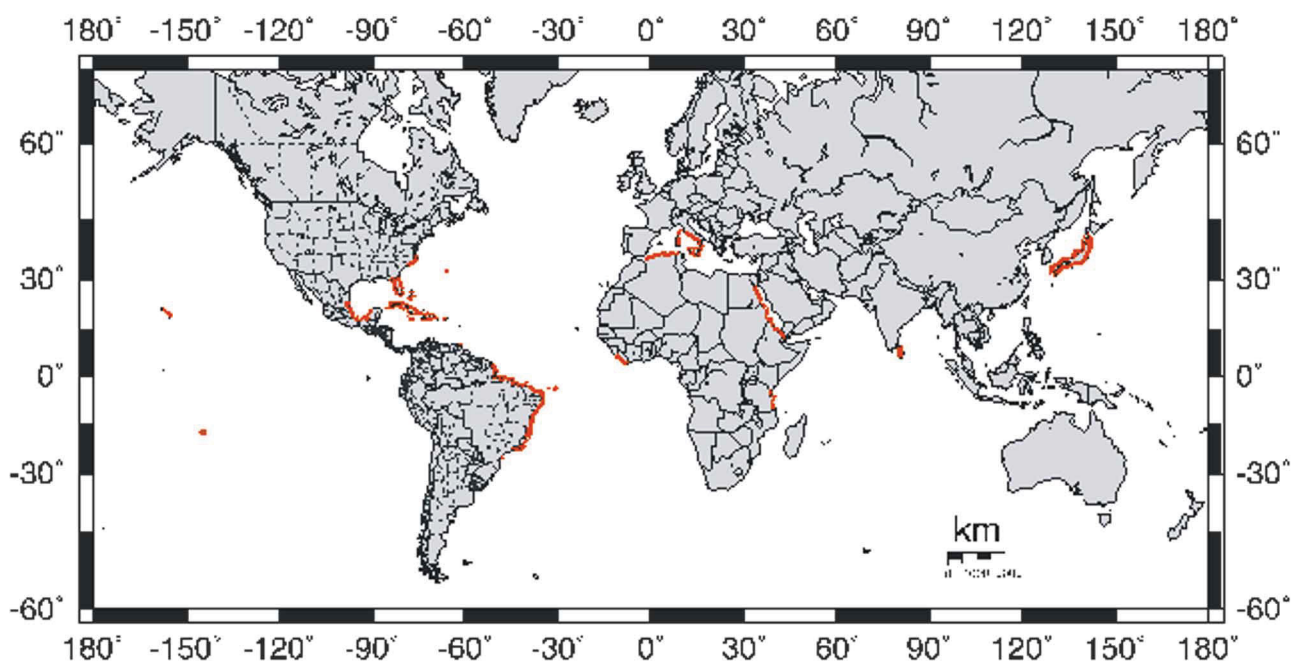
*Brachycarpus savignyi* Bate, 1888: 795.

*Brachycarpus biunguiculatus* Nobili, 1905: 2; Holthuis, 1952: 3; Chace, 1972: 18; Williams, 1984: 63; Cardoso, 2006: 27; Cardoso & Young, 2007: 285.

**Material examined.** AMAPÁ: (4°28'5"N, 50°16'5"W), 2 females, (MNRJ-2707); (3°40'0"N, 49°55'5"W), 1 male, (MNRJ-2708); CEARÁ: São Gonçalo do Amarante, Praia da Taíba, 1 indeterminate (MNRJ-18649); RIO GRANDE DO NORTE: Rocas Atoll, 1 male, (MNRJ-19030); Rocas Atoll, 1 female, 1 ovigerous female, (MNRJ-19031); Rocas Atoll, 2 females, (MNRJ-19032); Rocas Atoll, 1 female, (MNRJ-19033); BAHIA: (13°38'98"S, 38°45'94"W), 1 indeterminate, (MNRJ-17725); (16°19'55"S, 38°14'39"W), 1 female, (MNRJ-18526); (16°47'13"S, 38°41'84"W), 3 females, (MNRJ-17724); (18°02'70"S, 37°19'74"W), 1 male, 1 female, 1 ovigerous female, (MNRJ-17133); ESPÍRITO SANTO: (19°48'47"S, 37°56'33"W), 1 ovigerous female, (MNRJ-17736); (20°10'11"S, 37°27'70"W), 1 male, 2 females, (MNRJ-17132); (20°29'32"S, 28°51'27"W), 1 female, (MNRJ-19455); (20°31'17"S, 29°21'03"W), 1 male, 1 female, (MNRJ-17744); Guarapari, 1 male, 2 females, (MNRJ-2667); (20°42'47"S, 35°27'41"W), 1 female, 2 indeterminate, (MNRJ-19456); Ilha de Trindade, Enseada dos Portugueses, 1 male, (MZUSP-12917); RIO DE JANEIRO: (21°9'55"S, 40°19'43"W), 1 male, (MNRJ-17740); PARANÁ: Baía de Paranaguá, 1 indeterminate, (FURG-2312).

**Diagnosis.** Rostrum straight, reaching about end of scaphocerite, dorsal margin with 7 or 8 teeth, first 2 teeth behind orbit, ventral margin with 3 teeth. Scaphocerite with strong terminal tooth overreaching end of blade. Mandibular palp with three articles, reaching almost end of incisor process. Telson with 2 pairs of dorsal spines not placed sidelong.

**Distribution.** Western Atlantic Ocean: USA (North Carolina, Florida), Bermudas, Mexico, Bahamas, Cuba, Jamaica, Haiti, Puerto Rico, Virgin Islands, Barbados, Brazil (Amapá, Pará, Maranhão, Piauí, Ceará [Rocas Atoll], Rio Grande do Norte, Paraíba, Pernambuco [Fernando de Noronha], Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro and Paraná). Oriental Atlantic Ocean: Liberia. Mediterranean: Algeria and Italy. Pacific and Indian Oceans: Red Sea, Tanganyika, Ceylon, Japan, Hawaii and Clipperton Island.



**FIGURE 3.** Distribution of *Brachycarpus biunguiculatus* (Lucas, 1849).

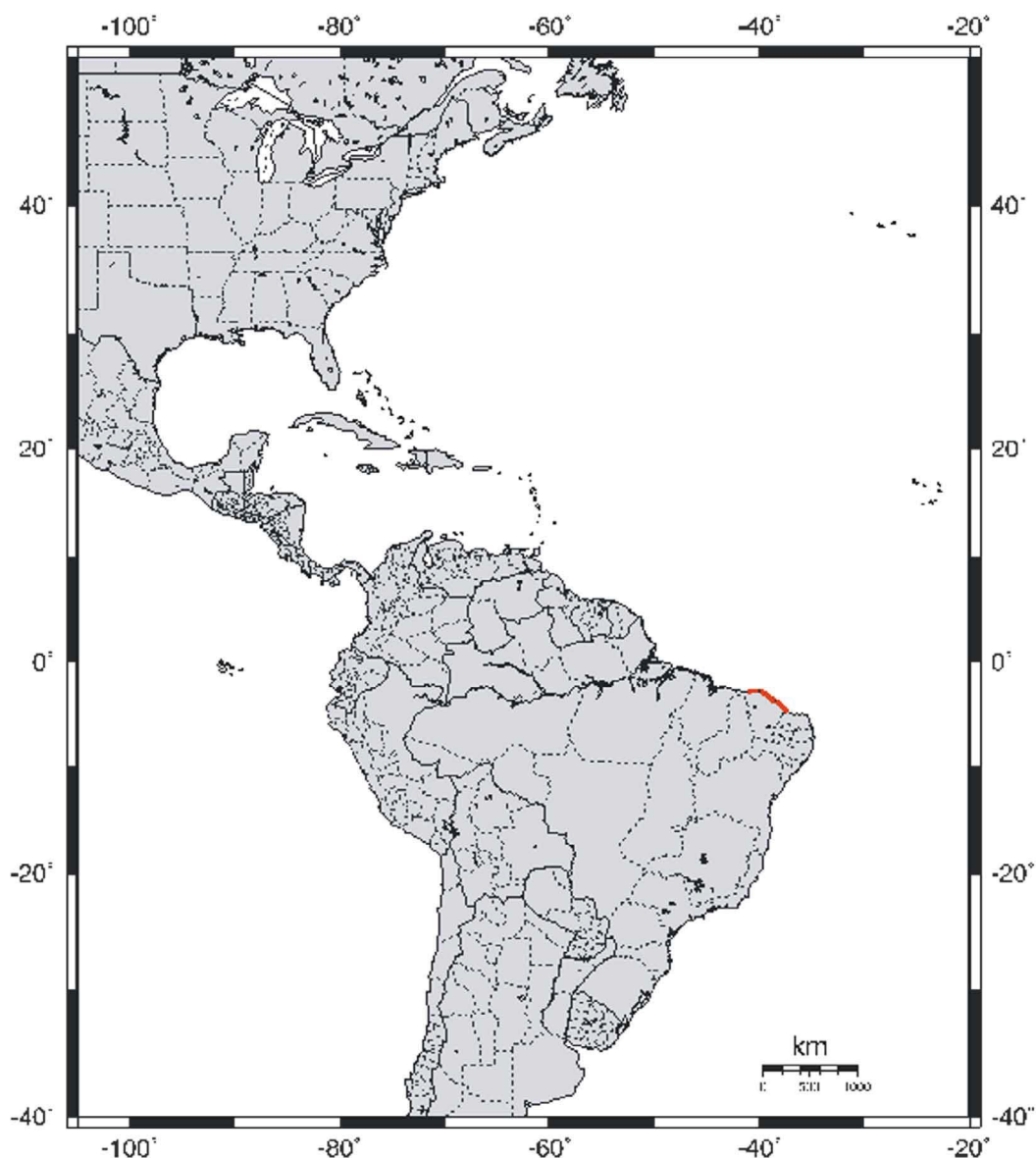
***Brachycarpus holthuisi* Fausto-Filho, 1966**

*Brachycarpus holthuisi* Fausto-Filho, 1966: 123; Chace, 1972: 18; Coelho & Ramos, 1972: 144; Ramos-Porto & Coelho, 1998: 329; Coelho *et al.*, 2006: 50.

**Material examined.** None.

**Diagnosis.** Rostrum reaching end of scaphocerite, dorsal margin with 8 teeth, first two teeth behind orbit, ventral margin with 3 teeth. Scaphocerite with terminal tooth not overreaching end of blade. Mandibular palp with three articles, not reaching half of incisor process. Telson with 2 pairs of dorsal spines placed well sidelong (modified from Fausto-Filho, 1966).

**Distribution.** Ceará.



**FIGURE 4.** Distribution of *Brachycarpus holthuisi* Fausto-Filho, 1966.

***Leander* Desmarest, 1849**

*Leander* Desmarest, 1849: 92; Holthuis, 1952: 154; Chace & Bruce, 1993: 5; Cardoso, 2006: 27; Cardoso & Young, 2007: 286.



**Diagnosis.** Rostrum well developed, with teeth on dorsal and ventral margins. Carapace with antennal and branchiostegal spines. Mandibular palp with 2 articles. Maxillipeds with exopods. Dactyli of pereopods 3 to 5 simple. Telson with 2 pairs of dorsal spines and 2 pairs of spines on posterior margin.

***Leander paulensis* Ortmann, 1897**

*Leander paulensis* Ortmann, 1897: 192; Manning, 1961: 526; Ramos-Porto, 1985/86: 10; Ramos-Porto & Coelho, 1990: 96.

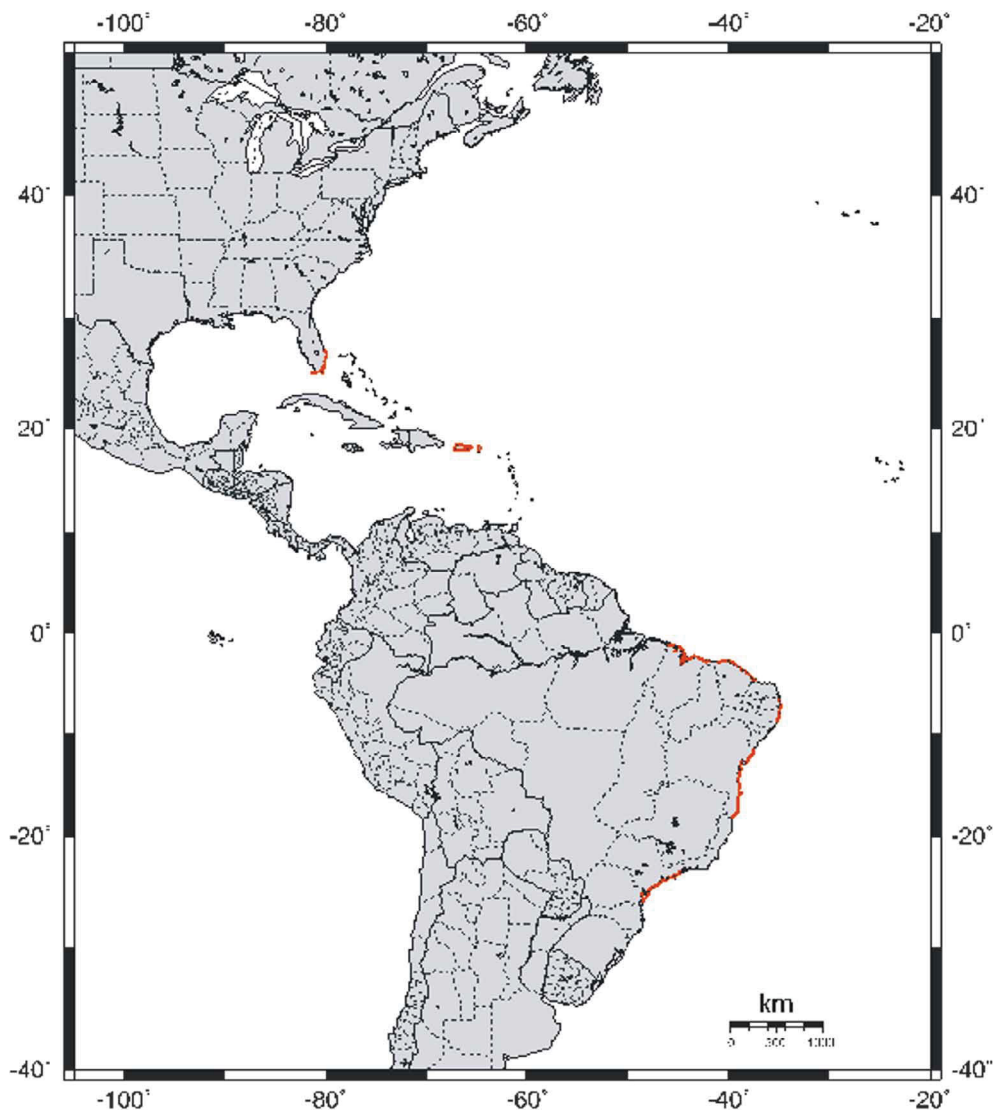
*Palaemon paulensis* Rathbun, 1902: 125; Schmitt, 1935: 160.

*Leander tenuicornis* Holthuis, 1952: 155 (in part).

**Material examined.** BAHIA: Caravelas, Praia do Grauçá, 9 males, 8 females, 6 ovigerous females, (FURG-2446); PARANÁ: Paranaguá, Baía de Paranaguá, 1 female, (FURG-2310).

**Diagnosis.** Rostrum straight, overreaching end of scaphocerite, dorsal margin with 10 to 14 teeth, first 2 teeth behind orbit, ventral margin with 5 teeth. Basal segment of antennular peduncle with convex anterior margin, and small stylocerite, not reaching half of this segment. Mandibular palp with two articles, not reaching half of incisor process.

**Distribution.** Western Atlantic Ocean: USA (Florida), Puerto Rico, Virgin Islands, Brazil (Maranhão, Ceará, Paraíba, Pernambuco, Bahia, São Paulo e Paraná).



**FIGURE 5.** Distribution of *Leander paulensis* Ortmann, 1897.

## *Leander tenuicornis* (Say, 1818)

*Palaemon tenuicornis* Say, 1818: 249.

*Leander erraticus* Desmarest, 1849: 92.

*Leander tenuicornis* Kingsley, 1878: 66; Holthuis, 1950a: 26; 1952: 155 (in part); Chace, 1972: 19; Williams, 1984: 65; Ramos-Porto, 1985/86: 13; Ramos-Porto & Coelho, 1990: 97; 1998: 331; Cardoso, 2006: 27; Cardoso & Young, 2007: 287.

**Material examined.** CEARÁ: Fortaleza, Praia do Mucuripe, 1 male, 1 female, 3 ovigerous females, (MNRJ-1089); RIO GRANDE DO NORTE: Rocas Atoll, (3°51'6,8"S, 33°49'6,04"W), 1 female, (MNRJ-19034); BAHIA: (14°48'30"S, 38°55'00"W), 1 female, 1 indeterminate, (MNRJ-17727); (14°48'30"S, 38°55'00"W), 1 male, 1 ovigerous female, 2 indeterminate, (MNRJ-18639); (15°34'08"S, 38°49'81"W), 1 ovigerous female, (MNRJ-17730); (16°07'30"S, 38°10'52"W), 1 female, (MNRJ-17731); RIO DE JANEIRO: Arraial do Cabo, Praia dos Anjos, 1 ovigerous female, (MNRJ-19284).

**Diagnosis.** Rostrum reaching about end of scaphocerite, dorsal margin with 11 teeth, first 2 teeth behind orbit, ventral margin with 5 or 6 teeth. Basal segment of antennular peduncle broad with concave or straight anterior margin, stylocerite long, reaching 2/3 of this segment. Mandibular palp with 2 articles, reaching beyond half of incisor process.

**Distribution.** Western Atlantic Ocean: Canada, USA (Massachusetts, Virginia, North Carolina, South Carolina, Florida, Louisiana and Texas), Bermudas, Mexico, Panama, Bahamas, Cuba, Jamaica, Puerto Rico, Virgin Islands, Colômbia, Venezuela, Brazil (Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, [Rocas Atoll], Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro and São Paulo), Malvinas Islands. Oriental Atlantic Ocean: Azores Archipelago – Portugal. Mediterranean: Spain, France, Italy and Libya. Pacific and Indian Oceans: Red Sea, India, Japan, Papua New Guinea, Australia and New Zealand.

**Remarks.** *L. tenuicornis* has sexual dimorphism in the shape of the rostrum. The female has a broadened ventral margin rostrum (Manning, 1961).

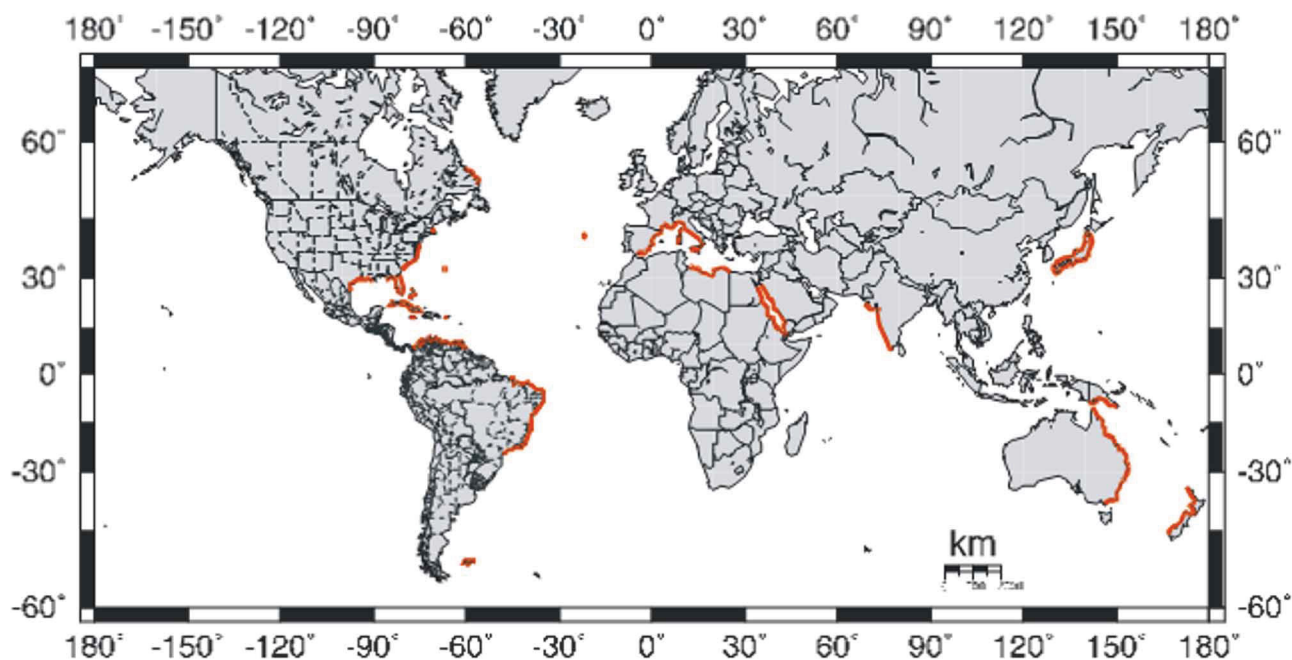


FIGURE 6. Distribution of *Leander tenuicornis* (Say, 1818).

## *Macrobrachium* Bate, 1868

*Macrobrachium* Bate, 1868: 363; Holthuis, 1952: 10; Chace, 1972: 19; Kensley & Walker, 1982: 3; Williams, 1984: 66; Chace & Bruce, 1993: 8; Bowles *et al.*, 2000: 159.

**Diagnosis.** Rostrum with teeth on dorsal and ventral margins. Carapace with antennal and hepatic spines. Mandibular palp with 3 articles. Maxillipeds with exopods. Second pereopods much stronger and longer than first pereopods. Dactyli of pereopods 3 to 5 simple. Telson with 2 pairs of dorsal spines and 2 pairs of spines on the posterior margin.

***Macrobrachium acanthurus* (Wiegmann, 1836)**

*Palaemon acanthurus* Wiegmann, 1836: 150.

*Macrobrachium longidigitum* Bate, 1868: 365.

*Macrobrachium acanthurus* Pearse, 1911: 111; Sawaya, 1946: 405; Holthuis, 1950a: 12, 1950c: 35, 1952: 45; Chace, 1972: 20; Ramos-Porto, 1980: 295; Ramos-Porto & Palácios, 1981: 281; Williams, 1984: 66; Abele & Kim, 1986: 14; Bond-Buckup & Buckup, 1989: 887, 1999: 312; Ramos-Porto & Coelho, 1990: 101, 1998: 331; Bowles *et al.*, 2000: 159; Melo, 2003: 338; Nizinski, 2003: 103; Almeida *et al.*, 2006: 8; Almeida *et al.*, 2007: 10.

**Material examined.** PARÁ: Boa Vista, 1 male, (MZUSP-1936); PIAUÍ: Jaicos, BR-1102, 5 indeterminate, (MNRJ-925); CEARÁ: Fortaleza, 1 male, 2 females, 1 ovigerous female, (MNRJ-935); Fortaleza, 7 males, 1 female, 2 ovigerous females, (MNRJ-926); RIO GRANDE DO NORTE: Natal, Lagoa do Jiqui, 14 males, 21 ovigerous females, (MNRJ-962); PERNAMBUCO: Pernambuco, 4 males, 2 ovigerous females, (MNRJ-930); Goiana, Rio Goiana, 4 males, 1 female, 1 ovigerous female, (MNRJ-965); Ponta de Pedras, 1 male, (MZUSP-3887); Recife, 4 males, (MNRJ-929); Recife, 1 male, 1 female, 1 ovigerous female, (MNRJ-907); Tamandaré, Rio Mamucabinha, 4 males, (FURG-1284); ALAGOAS: Mundaú, 1 male, (MZUSP-7124); Mundaú, 1 male, (MZUSP-7126); Mundaú, 1 male, (MZUSP-7132); Maceió, Lagoa Mundaú, 1 ovigerous female, (MNRJ-960); São Miguel dos Campos, Rio Jequiá, 4 males, 2 females, (MNRJ-860); SERGIPE: Fazenda Boa União, 2 males, 2 females, (MNRJ-912); BAHIA: Mar Grande, 1 male, 1 ovigerous female, (MNRJ-909); Ilhéus, 3 males, 3 females, (MNRJ-931); Ilhéus, 6 males, (MNRJ-910); Ilhéus, Rio Cachoeira, 7 males, 2 females, (MNRJ-16782); Ilhéus, 4 males, 2 females, 2 ovigerous females, (MZUSP-1256); Mucuri, Rio Mucuri, 1 male, 1 female, (MZUSP-9164); Mucuri, Rio Mucuri, 2 males, 5 females, 1 ovigerous female, (MZUSP-9162); ESPÍRITO SANTO: Espírito Santo, 1 ovigerous female, (MNRJ-911); Linhares, Santa Cruz, 1 female, (MNRJ-959); Linhares, 2 males, 1 female, 7 ovigerous females, (MZUSP-1937); (21°15'S, 40°22'W), 1 male, (MNRJ-3367); RIO DE JANEIRO: Atafona, 1 male, 1 female, (MZUSP-1910); Atafona, 1 male, (MZUSP-1911); Atafona, Lagoa Pontal, 5 indeterminate, (MZUSP-6473); Atafona-Campos, 1 male, 1 female, (MNRJ-964); Campos, Lagoa Verde, 1 male, (MNRJ-875); Rio Paraíba, 3 males, 2 ovigerous females, (MZUSP-1926); Casimiro de Abreu, 2 males, 1 female, (MNRJ-4160); Ilha do Peçanha, 1 ovigerous female, (MZUSP-1912); Macaé, 3 males, 3 females, (MNRJ-882); Maricá, Lagoa de Maricá, 1 female, (MZUSP-1932); São Gonçalo, Rio Guaxindiba, 2 females, (MNRJ-924); Caxias, 2 males, (MNRJ-916); Rio de Janeiro, Lagoa Rodrigo de Freitas, 2 males, 2 females, (MNRJ-883); Guaratiba, 1 ovigerous female, (MNRJ-922); Pedra de Guaratiba, 1 ovigerous female, (MNRJ-961); Angra do Reis, Rio do Frade, 1 female, (MNRJ-977); Ilha Grande, 2 females, 1 ovigerous female, (MNRJ-3342); Ilha Grande, 1 male, (MZUSP-206); Sepetiba, Praia Dona Luiza, 1 ovigerous female, (MNRJ-872); Ilha Grande, Lagoa Verde, 1 male, (MZUSP-10287); Parati, 1 male, 1 female, (MNRJ-919); Parati, Rio Parati-Mirim, 2 males, (MNRJ-4166); SÃO PAULO: Ubatuba, 1 male, (MZUSP-229); Perus, 1 male, (MZUSP-201); Rio Jabatinga, (23°34'05"S, 45°16'14,9"W), 6 males, (MZUSP-16034); São Sebastião, 6 males, 9 females, (MZUSP-15154); São Sebastião, 1 male, (MZUSP-942); São Sebastião, 2 indeterminate, (MZUSP-228); São Sebastião, 2 females, (MZUSP-945); entre São Sebastião e Guarujá, (23°48'55,6"S, 45°31'34,7"W), 1 male, 1 female, (MZUSP-16051); Itanhaen, 1 female, (MZUSP-1931); Estação Ecológica Juréia-Itatins, Base do Arpoador, 7 males, 1 indeterminate, (MZUSP-13942); Estação Ecológica Juréia-Itatins, 2 males, (MZUSP-16184); Serra da Juréia, 1 indeterminate, (MZUSP-9560); Iguape, 1 male, (MZUSP-569); Ilha Comprida, (25°00'50"S, 47°52'32"W), 3 males, 2 females, 3 ovigerous females, (MZUSP-15822); Ilha Comprida, Rio Capivatú, 4 males, 8 females, 4 ovigerous females, (MZUSP-13941); PARANÁ: Bacia de Paranaguá, 1 ovigerous female, (FURG-2307); SANTA CATARINA: Santa Catarina, 1 male, (MZUSP-5960); Santa Catarina, 1 ovigerous female, (MZUSP-5961); Santa Catarina, 1 male, (MZUSP-5956); Santa Catarina, 1 male, (MZUSP-5958); Santa Catarina, 1



male, (MZUSP-5954); Itajaí, 1 indeterminate, (MZUSP-219); Itajaí, 4 males, (MZUSP-1258); Itajaí, Rio Itajaí-Açu, 1 male, 1 female, (MNRJ-934); Camboriú, Rio Camboriú, 1 male, 1 female, (FURG-375); Bombinhas, Porto Belo, 1 male, 1 female, (FURG-374); Bombinhas, Porto Belo, 18 females, (FURG-477); RIO GRANDE DO SUL: Lagoa dos Patos, Marambaia, 1 male, (FURG-2101); Lagoa dos Patos, Prado, 1 male, (FURG-2100); Lagoa dos Patos, Prado, 1 ovigerous female, (FURG-3066).

**Diagnosis.** Rostrum almost straight, reaching slightly beyond scaphocerite, dorsal margin with 9 to 11 teeth, first 2 teeth behind orbit, ventral margin with 4 to 7 teeth equally distributed. Carpus of second pereopods is about 1.5 times as long as the merus, fingers slender covered with pubescence, bearing 4 small teeth on cutting edge of dactyl.

**Distribution.** Western Atlantic Ocean: USA (North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas), Mexico, Honduras, Nicaragua, Panama, Bahamas, Cuba, Jamaica, Haiti, Dominican Republic, Puerto Rico, Virgin Islands, Colombia, Venezuela, Surinam, Brazil (Pará, Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul).

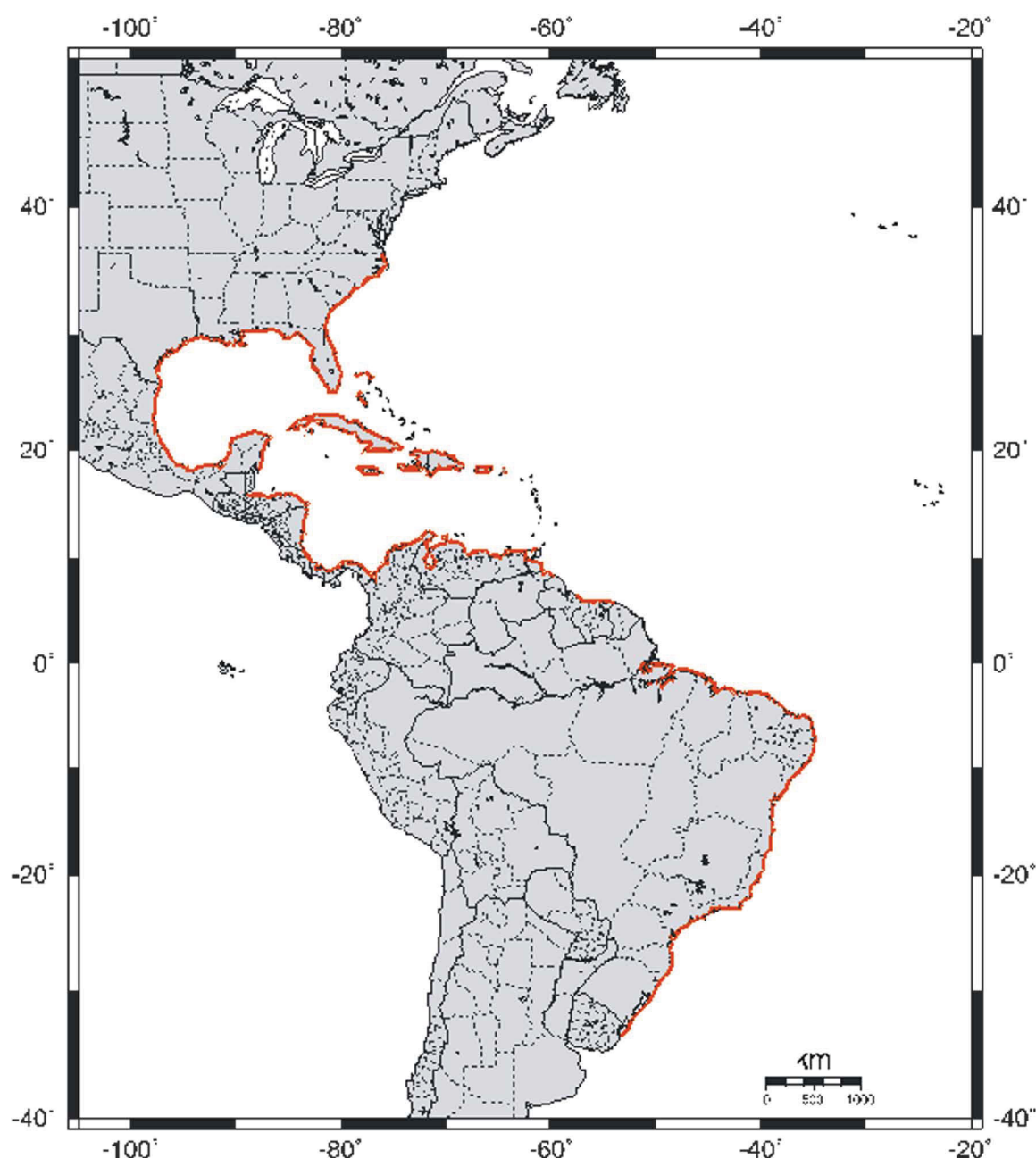


FIGURE 7. Distribution of *Macrobrachium acanthurus* (Wiegmann, 1836).

## ***Macrobrachium carcinus* (Linnaeus, 1758)**

*Cancer Carcinus* Linnaeus, 1758: 631.

*Palaemon carcinus* Weber, 1795: 94.

*Macrobrachium jamaicense* Pearse, 1915: 551; Sawaya, 1946: 402.

*Macrobrachium carcinus* Hedgpeth, 1949: 31; Holthuis, 1950a: 13, 1950c: 31, 1952: 114; Chace, 1972: 20; Anderson & Fillingame, 1980: 91; Ramos-Porto, 1980: 295; Ramos-Porto & Palácios, 1981: 281; Williams, 1984: 68; Abele & Kim, 1986: 14; Bond-Buckup & Buckup, 1989: 889, 1999: 312; Ramos-Porto & Coelho, 1998: 332; Bowles *et al.*, 2000: 160; Melo, 2003: 348; Nizinski, 2003: 103.

**Material examined.** PARAÍBA: Tamandaré, Rio Mamuçaba, 1 male, (FURG-1282); ALAGOAS: Mundaú, 1 female (MZUSP-7137); Mundaú, 1 ovigerous female, (MZUSP-7138); Maceió, 1 ovigerous female, (MNRJ-1093); Atalaia, 1 male, (MNRJ-15375); Alagoas, 1 male, 1 female, 1 indeterminate, (MNRJ-876); BAHIA: Ilhéus, Rio Cachoeira, 1 male, (MNRJ-2454); Rio Paraguassu, 2 males, 1 indeterminate, (MNRJ-2677); Itapetinga, 4 males, (MNRJ-887); RIO DE JANEIRO: Rio Muriaé, 1 male, (MZUSP-1918); Rio de Janeiro, 3 males, 1 female, (MNRJ-2680); Rio de Janeiro, estrada Barra de Guaratiba, 1 male, (MNRJ-874); Rio de Janeiro, Ribeirão na Gávea, 1 male, (MNRJ-2673); Jurujuba, 1 female, 2 ovigerous female, (MNRJ-2671); Maricá, 3 males, 3 females, (MNRJ-2285); Marica, 3 males, 3 ovigerous female, (MNRJ-2286); Parati, Fazenda Laranjeiras, 1 male, 2 females, (MNRJ-1092); Santa Cruz, 2 males, (MNRJ-2679); Rio Bonito, 1 male, (MNRJ-2675); São Fidelis, Rio Paraíba do Sul, 1 male, 2 females, (MZUSP-10290); SÃO PAULO: Peruíbe, 1 male, 1 female, (MZUSP-15809); São Sebastião, 1 female, (MZUSP-13593); Piassaguera, 1 male, (MZUSP-715); Ilha de Búzios, 1 male, (MZUSP-1915); Ilha de Búzios, 1 female, (MZUSP-9645); Cananéia, Rio Branco, 1 male, (MZUSP-13930); Rio Perequê, Juréia Itatins, 1 male, (MZUSP-13919); Peruíbe, (24°23'09"S, 47°01'07"W), 3 males, (MZUSP-15805); São Sebastião, 1 male, (MZUSP-717); São Sebastião, Bela Vista, 1 male, (MZUSP-16052); São Sebastião, 1 male, (MZUSP-225); São Sebastião, 2 males, 3 females, (MZUSP-247); São Sebastião, 2 females, 1 ovigerous female, (MZUSP-226); Rio Paraíba, 1 male, (MZUSP-13844); Ilha Bela, Rio do Curral, 1 male, 1 female, (MZUSP-16069); Ilha Bela, Rio Cocaia, 1 male, 1 female, (MZUSP-16059); Rio Mococa, (23°33'01,7"S, 45°17'56,3"W), 1 male, (MZUSP-16038); São Paulo, 1 male, 1 female, (MZUSP-16047); São Vicente, Serra do Mar, 3 indeterminate, (MZUSP-13592); Bertioiga, Praia de Guaratuba, 1 male, (MZUSP-12131); Itanhaen, 1 female, (MZUSP-716); Ubatuba, 2 males, 1 female, (MZUSP-9845); Ubatuba, 1 male, (MZUSP-712); Ubatuba, Rio do Ouro, 1 male, (MZUSP-15971); Rio Tietê, 1 male, (MZUSP-718); Registro, 2 females, (MZUSP-1916); Registro, 1 male, (MZUSP-6188); Cubatão, 1 male, (MZUSP-1437); Sorocaba, Rio Branco, 1 female, (MNRJ-1090); SANTA CATARINA: Santa Catarina, 1 male, (MZUSP-5964); Santa Catarina, 1 female, (MZUSP-5965); Santa Catarina, 1 female, (MZUSP-5966); Joinville, 1 male, 1 female, (MNRJ-885); RIO GRANDE DO SUL: Canal São Gonçalo, 1 ovigerous female, (FURG-3070); Canal São Gonçalo, 2 males, (FURG-3062); Canal São Gonçalo, 1 male, (FURG-3075).

**Diagnosis.** Rostrum straight, reaching or overreaching antennular peduncle, but not reaching end of scaphocerite, dorsal margin with 11 to 14 teeth equally distributed, first 4 to 6 teeth behind orbit, ventral margin with 3 or 4 teeth. Second pair of pereopods equal in shape and size, with carpus distinctly shorter than merus, fingers that not pubescence and not gapping when closed.

**Distribution.** Western Atlantic Ocean: USA (Florida, Mississippi, Texas), Mexico, Guatemala, Nicaragua, Costa Rica, Panama, Cuba, Jamaica, Puerto Rico, Virgin Islands, Guadeloupe, Saint Lucia, St. Vicente and Grenadines, Barbados, Colombia, Venezuela, Guiana, Suriname, Brazil (Pará, Piauí, Ceará, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Santa Catarina, Rio Grande do Sul).

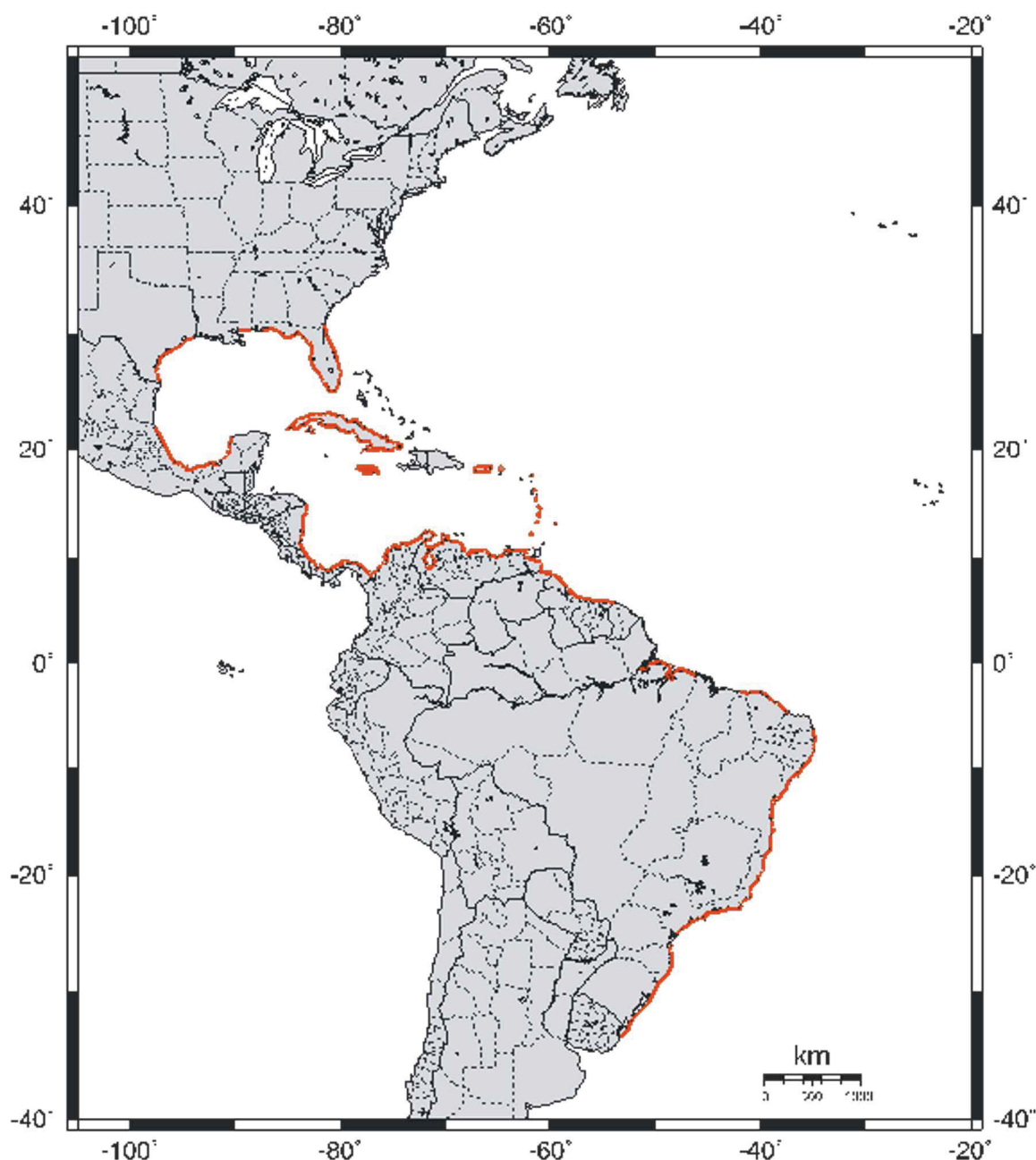


FIGURE 8. Distribution of *Macrobrachium carcinus* (Linnaeus, 1758).

***Macrobrachium olfersii* (Wiegmann, 1836)**

*Palaemon Olfersii* Wiegmann, 1836: 150.

*Palaemon olfersii* Ortmann, 1891: 733.

*Macrobrachium olfersii* Pearse, 1911: 111; Sawaya, 1946: 404; Holthuis, 1950a: 17; Anderson & Fillingame, 1980: 90; Williams, 1984: 70; Abele & Kim, 1986: 14; Ramos-Porto & Coelho, 1998: 334; Bowles *et al.*, 2000: 165; Nizinski, 2003: 103.

*Macrobrachium olfersi* Holthuis, 1952: 95; Ramos-Porto & Palacios, 1981: 280; Bond-Buckup & Buckup, 1989: 891, 1999: 313; Melo, 2003: 366.

**Material examined.** AMAPÁ: Mundaú, 1 male, (MZUSP-7142); PARÁ: Pará, 5 males, (MZUSP-12260); PIAUÍ: Rio Piauí, 1 indeterminate, (MNRJ-2574); CEARÁ: Orós, Rio Jaguaribe, 7 indeterminate, (MNRJ-895); RIO GRANDE DO NORTE: Lagoa do Jiqui, 3 males, 1 female, 1 ovigerous female, (MNRJ-2594);

PERNAMBUCO: Recife, 1 male, 1 indeterminate, (MNRJ-2563); Recife, 1 male, (MNRJ-2562); Recife, 5 indeterminate, (MNRJ-2567); Recife, 1 male, (MNRJ-2580); ALAGOAS: Mundaú, 1 male, (MZUSP-7143); Maceió, Lagoa Mundaú, 1 male, 1 female, 1 ovigerous female, (MNRJ-2561); Atalaia, Rio Paraíba, 5 males, 1 female, 1 ovigerous female, (MNRJ-16783); São Miguel dos Campos, 1 female, (MNRJ-894); SERGIPE: Rio Piauí, 1 male, 1 female, (MNRJ-2569); BAHIA: Mucuri, Rio Mucuri, 1 male, 3 females, 3 ovigerous females, (MZUSP-9163); Mucuri, Rio Mucuri, 1 ovigerous female, (MZUSP-9165); Salvador, 4 males, 1 female, (MNRJ-2586); Ilhéus, 16 males, 8 females, (MNRJ-2582); Ilhéus, 6 males, (MNRJ-4403); Ilhéus, 1 female, (MNRJ-2578); Rio Uma, 1 male, (MZUSP-9252); ESPÍRITO SANTO: Leopoldina, Rio Santa Maria, 5 males, 1 ovigerous female, (MZUSP-203); Lagoa Juparanã, 2 ovigerous females, (MNRJ-2584); RIO DE JANEIRO: Rio Guapiaçú, 1 male, 1 ovigerous female, (MZUSP-5945); Rio Guapiaçú, 1 male, (MZUSP-5947); Rio Paraíba, 1 male, (MZUSP-1913); Rio Paraíba, 3 males, (MZUSP-12037); Parati, Rio Parati-Mirim, 3 males, 3 females, (MNRJ-4341); Parati, Rio Parati-Mirim, 3 males, (MNRJ-4342); Parati, 5 males, 3 ovigerous females, (MNRJ-2771); Casimiro de Abreu, Praia do Mar do Norte, 4 males, 2 ovigerous females, (MNRJ-2750); Jacarepaguá, Rio Camorim, 2 males, 1 female, 1 ovigerous female, (MNRJ-1701); Itaguaí, 2 males, 1 ovigerous female, (MNRJ-4373); Mangaratiba, Praia da Ribeira, 1 ovigerous female, (MNRJ-2588); Ilha da Marambaia, 3 females, (MNRJ-2566); Niterói, Serra das Tiriricas, 1 female, (MNRJ-2294); Rio de Janeiro, Lagoa Rodrigo de Freitas, 1 male, (MNRJ-873); Rio de Janeiro, Canal da Barra da Tijuca, 1 male, (MNRJ-2576); Ilha do Governador, 5 males, 4 females, (MNRJ-997); SÃO PAULO: Ubatuba, Rio Ubatumirim, (23°18'24"S, 44°52'18,8"W), 9 males, 7 females, 1 ovigerous female, (MZUSP-15941); Ubatuba, Rio Grande, (23°24'58,5"S, 45°06'29,9"W), 2 males, 12 females, (MZUSP-15981); Ubatuba, Rio Itamambuca, 1 male, (FURG-0450); Ubatuba, Rio Comprido, (23°24'58,8"S, 45°06'31,4"W), 1 male, 6 females, (MZUSP-15960); Ubatuba, Rio Comprido, (23°24'58,8"S, 45°06'31,4"W), 1 male, (MZUSP-15959); Ubatuba, Rio Comprido, (23°25'17,8"S, 45°07'41,6"W), 2 males, (MZUSP-15950); Ubatuba, Rio Comprido, (23°25'22,4"S, 45°07'30,7"W), 7 males, 1 female, (MZUSP-15955); Ubatuba, Rio Comprido, (23°25'20"S, 45°07'35"W), 18 males, 26 females, 6 ovigerous females, (MZUSP-15944); Ubatuba, (23°25'06,1"S, 45°07'46,6"W), 1 male, (MZUSP-15970); Ubatuba, Rio do Ouro, (23°25'06,1"S, 45°07'46,6"W), 1 female, (MZUSP-15961); Ubatuba, Rio do Cemitério, (23°24'44"S, 45°06'50,7"W), 8 males, 7 females, (MZUSP-15984); Ubatuba, Rio Tunhumbi, (23°30'5,47"S, 45°14'54,7"W), 3 males, (MZUSP-16001); Ubatuba, Rio Marimbondo, (23°31'02,9"S, 45°14'43,7"W), 3 males, 1 female, 2 ovigerous females, (MZUSP-15989); Ubatuba, Rio Marimbondo, (23°31'02,9"S, 45°14'43"W), 19 males, 6 females, (MZUSP-15997); Ubatuba, 5 males, 4 females, (MZUSP-6395); Ubatuba, (23°31'57,9"S, 45°14'35,1"W), 3 males, 1 female, (MZUSP-16020); Cachoeira do Engenho, (23°31'0,10"S, 45°14'48,9"W), 2 males, 4 females, (MZUSP-16012); Ilha do Cardoso, 1 male, 1 ovigerous female, (MZUSP-15097); Tabatinga, Rio do Sítio Jacu, (23°33'32,9"S, 45°16'38,3"W), 1 male, (MZUSP-16032); Sorocaba, 1 ovigerous female, (MZUSP-732); Sorocaba, 1 male, 2 females, 1 ovigerous female, (MNRJ-2571); Ilha dos Búzios, 2 males, 3 ovigerous females, (MZUSP-9643); São Sebastião, Rio Boissucanga, 1 female, 1 ovigerous female, (MZUSP-13596); São Sebastião, Bela Vista, (23°48'55,6"S, 45°31'34,7"W), 5 males, 2 females, (MZUSP-16050); São Sebastião, Bela Vista, (23°48'55,6"S, 45°31'34,7"W), 5 males, 2 females, (MZUSP-16050); São Sebastião, Toque Toque Pequeno, (23°48'42,1"S, 45°31'39"W), 10 males, 10 females, (MZUSP-16043); São Sebastião, Rio Guaicá, 2 males, (MZUSP-16679); São Sebastião, (23°48'43,9"S, 45°31'43,2"W), 1 male, 3 females, (MZUSP-16045); Ilhabela, Rio do Curral, 3 males, 1 female, (MZUSP-16067); Ilhabela, Rio Cocaia, 5 males, 1 female, (MZUSP-16058); Ilhabela, Rio Castelhanos, (23°48'50,5"S, 45°21'35,4"W), 2 females, 8 ovigerous females, (MZUSP-16061); Cubatão, 1 male, (MNRJ-2564); Baixada de Santos e São Vicente, 1 male, (MNRJ-2565); Santos, 1 male, (MZUSP-730); Itanhaém, 2 females, 4 indeterminate, (MNRJ-2583); Cachoeira do Engenho, (23°31'0,6"S, 45°14'48,9"W), 14 males, 6 females, (MZUSP-16019); Cachoeira do Engenho, (23°31'0,1"S, 45°14'48,9"W), 11 males, 1 female, (MZUSP-16015); Rio Mococa, (23°32'20,8"S, 45°17'39,2"W), 10 males, (MZUSP-16040); Rio Mococa, (23°33'01,7"S, 45°17'56,3"W), 18 males, 11 females, 1 ovigerous female, (MZUSP-16035); Estação Ecológica Juréia-Itatins, Rio Tetiquera, 3 males, 1 female, (MZUSP-16678); Estação Ecológica Juréia-Itatins, Trilha do Fundão, 11 male, 2 females, 3 ovigerous females, 2 indeterminate, (MZUSP-13944); Cananéia, 1 male, 4 females, (MZUSP-15818); Cananéia, 1 male,



2 ovigerous females, (MZUSP-15813); Ilha Comprida, (25°00'50"S, 47°52'32"W), 1 male, 2 females, 1 indeterminate, (MZUSP-15829); SANTA CATARINA: Santa Catarina, 1 male, (MZUSP-5963); Santa Catarina, 1 male, (MZUSP-5962); Rio Gravataí, 2 males, (MZUSP-7387); Ilha do Arvoredo, 5 males, 2 females, (MZUSP-9568); Itajaí, Rio Itajaí-Açu, 2 males, (MNRJ-2585); Joinville, 8 males, 5 ovigerous females, (MNRJ-2589); RIO GRANDE DO SUL: Lagoa dos Patos, Baixio do Mosquito, 1 female, (FURG-2119); Lagoa dos Patos, Torotama, 1 male, (FURG-2120); Canal São Gonçalo, 1 male, (FURG-3063); Canal São Gonçalo, 1 male, (FURG-3067).

**Diagnosis.** Rostrum straight, reaching end of antennular peduncle, dorsal margin with 12 to 15 teeth equally distributed, first 3 or 4 teeth behind orbit, ventral margin with 3 or 4 teeth. Second pair of pereopods very unequal in size, but equal in shape, both pereopods bearing longitudinal row of spines.

**Distribution.** Western Atlantic Ocean: USA (North Carolina, Florida, Mississippi, Louisiana, Texas), Mexico, Guatemala, Nicaragua, Panama, Colombia, Venezuela, Guyana, Surinam, French Guyana, Brazil (Amapá, Pará, Piauí, Ceará, Rio Grande do Norte, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul).



FIGURE 9. Distribution of *Macrobrachium olfersii* (Wiegmann, 1836).

### *Nematopalaemon* Holthuis, 1950a

*Palaemon* (*Nematopalaemon*) Holthuis, 1950a: 9; Chace & Bruce, 1993: 38.

**Diagnosis.** Rostrum very long and slender, with teeth on dorsal and ventral margins. Carapace with antennal and branchiostegal spines. Mandibular palp with 3 articles. Maxillipeds with exopods. Dactyli of pereopods 3 to 5 simple. Telson with 2 pairs of dorsal spines and 2 pairs of spines on posterior margin.

### *Nematopalaemon schmitti* (Holthuis, 1950b)

*Palaemon schmitti* Holthuis, 1950c: 36, 1950b: 97.

*Palaemon* (*Nematopalaemon*) *schmitti* Holthuis, 1950a: 9, 1952: 169; Ramos, 1971: 44; Coelho & Ramos, 1972: 145.

*Nematopalaemon schmitti* Ramos-Porto & Coelho, 1998: 335; Costa *et al.*, 2000: 779; Coelho *et al.*, 2006: 50.

**Material examined.** AMAPÁ: Estação Ecológica Maracá, 1 male, 6 females, 3 ovigerous females, (MZUSP-12214); Amapá, (02°55'5N, 50°30'0W), 6 ovigerous females, (MNRJ-1067); Amapá, (02°47'N, 50°11'W), 4 females, 1 ovigerous female, 1 indeterminate, (MNRJ-1068); Amapá, (02°18'0N, 49°16'0W), 1 male, 6 females, 2 indeterminates, (MNRJ-1066); Amapá, (02°08'0N, 49°27'5W), 2 males, 4 females, (MNRJ-1069); PARÁ: Pará, (1°48'N, 48°18'W), 2 females, (FURG-2897); Pará, (01°21'0N, 48°32'5W), 1 female, 1 ovigerous female, (MNRJ-1070); Pará, (00°33'0N, 47°56'0W), 1 ovigerous female, (MNRJ-1071); ALAGOAS: Mundaú, 1 indeterminate, (MZUSP-10285); ESPÍRITO SANTO: Praia de Marataízes, 1 female, 4 ovigerous females, (MNRJ-1699); Vitória, 1 male, 1 female, (MNRJ-1072); Guarapari, 1 female, 1 indeterminate, (MNRJ-1073); SÃO PAULO: Litoral Norte, 4 males, 1 female, 6 ovigerous females, (MZUSP-14085); SANTA CATARINA: Tijucas, Baía de Tijucas, 1 male, 1 female, (MZUSP-9085); RIO GRANDE DO SUL: Lagoa dos Patos, Canal das Capivaras, 1 indeterminate, (FURG-2477).

**Diagnosis.** Rostrum very long and slender, distal part directed upward, dorsal margin with 3 or 4 teeth placed form a basal crest, rest of margin unarmed, except for a small subapical tooth, ventral margin with 7 to 9 teeth equally distributed. Second pair of pereopods stronger than first pair, reaching with part of carpus beyond scaphocerite, fingers almost twice larger than palm.

**Distribution.** Western Atlantic Ocean: Guyana, Surinam, French Guyana, Brazil (Amapá, Pará, Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Santa Catarina, Rio Grande do Sul).

### *Palaemon* Weber, 1795

*Palaemon* Weber, 1795: 94; Holthuis, 1952: 167; Chace, 1972: 21; Chace & Bruce, 1993: 39; Walker & Poore, 2003: 247; González-Ortegón & Cuesta, 2006: 100.

**Diagnosis.** Rostrum well developed, with teeth on dorsal and ventral margins. Carapace with antennal and branchiostegal spines. Mandibular palp with 2 or 3 articles. Maxillipeds with exopods. Dactyli of pereopods 3 to 5 simple. Telson with 2 pairs of dorsal spines and 2 pairs of spines on the posterior margin.

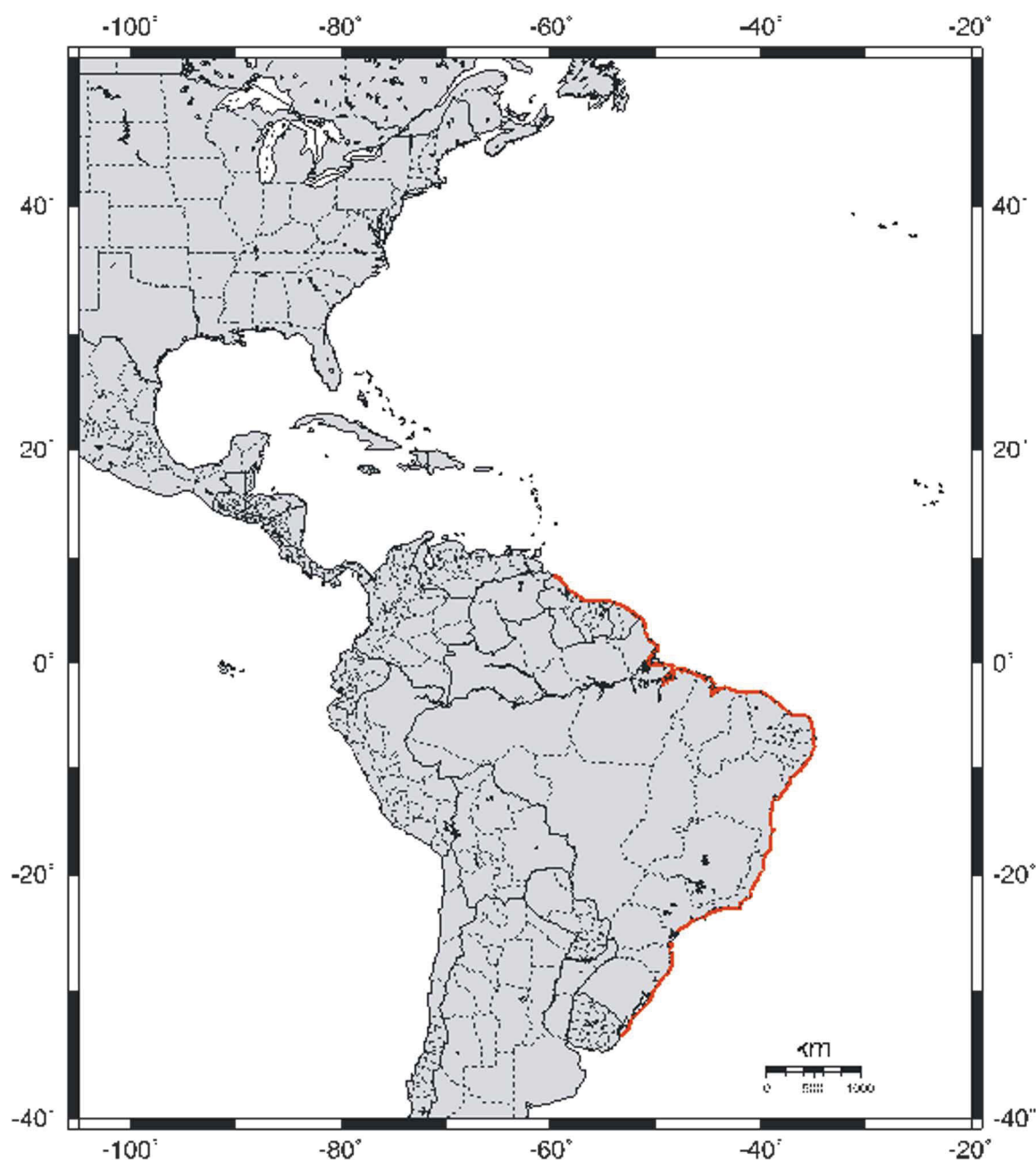


FIGURE 10. Distribution of *Nematopalaemon schmitti* (Holthuis, 1950b).

***Palaemon northropi* (Rankin, 1898)**

*Leander northropi* Rankin, 1898: 245.

*Palaemon paulensis* Moreira, 1901: 11.

*Palaemon (Palaeander) northropi* Holthuis, 1950a: 9, 1952: 192; Chace, 1972: 21; Coelho & Ramos, 1972: 145; Ramos-Porto & Coelho, 1998: 335; Almeida *et al.*, 2006: 8.

*Palaemon northropi* Ramos-Porto, 1980: 296; Abele & Kim, 1986: 14; Coelho *et al.*, 2006: 50.

**Material examined.** CEARÁ: Fortaleza, Rio Cocó, 6 ovigerous females, (MNRJ-15344); Fortaleza, Praia do Meireles, 1 male, (MNRJ-1049); Fortaleza, Praia de Mucuripe, 2 ovigerous females, (MNRJ-1048); Fortaleza, 2 females, 5 ovigerous females, (MNRJ-15357); Morro Branco, 4 ovigerous females, (MNRJ-1053); RIO GRANDE DO NORTE: Natal, 1 ovigerous female, (MNRJ-1050); Natal, 1 indeterminate,

(MNRJ-1054); Baía Formosa, Cabo Bacobari, 1 female, 19 ovigerous females, (MNRJ-1051); ESPÍRITO SANTO: Aracruz, Estação Ecológica De Aracruz, 3 females, 2 ovigerous females, (MNRJ-7796); RIO DE JANEIRO: Cabo Frio, 1 male, 1 female, 1 ovigerous female, (MNRJ-2304); Cabo Frio, Enseada dos Anjos, 2 males, 1 female, 7 ovigerous females, (MNRJ-2303); Rio de Janeiro, 1 male, 1 ovigerous female, (MNRJ-1059); Rio de Janeiro, Ilha do Governador, Praia do Engenho, 1 ovigerous female, (MNRJ-890); Rio de Janeiro, Ilha do Governador, 1 male, 1 female, 2 ovigerous females, (MNRJ-1047); Niterói, Praia da Boa Viagem, 2 ovigerous females, (MNRJ-1052); Mangaratiba, Praia da Ribeira, 2 ovigerous females, (MNRJ-1055); Jacarepaguá, Lagoa do Camorim, 1 male, 2 females, (MNRJ-1061); Ilha Grande, Praia do Abraão, 1 ovigerous female, (MNRJ-1000); SÃO PAULO: São Sebastião, 1 female, (MNRJ-1058); Itanhaen, 8 males, 21 females, 1 ovigerous female, (MZUSP-1398); SANTA CATARINA: Penha, Praia da Inspetoria, 1 male, 1 female, 1 ovigerous female, (MNRJ-1534); Bombinhas, Porto Belo, 1 male, 2 indeterminates, (FURG-2447); Bombinhas, Porto Belo, 1 male, 5 females, (FURG-2448); Bombinhas, Porto Belo, 4 males, 4 females, 3 ovigerous females, (FURG-1571); Bombinhas, 1 male, 9 ovigerous females, (MNRJ-2296); Florianópolis, Rio Tavares, 4 males, 4 females, 2 ovigerous females, 1 indeterminates, (MNRJ-2293); Florianópolis, Rio Tavares, 1 indeterminate, (MNRJ-2744).

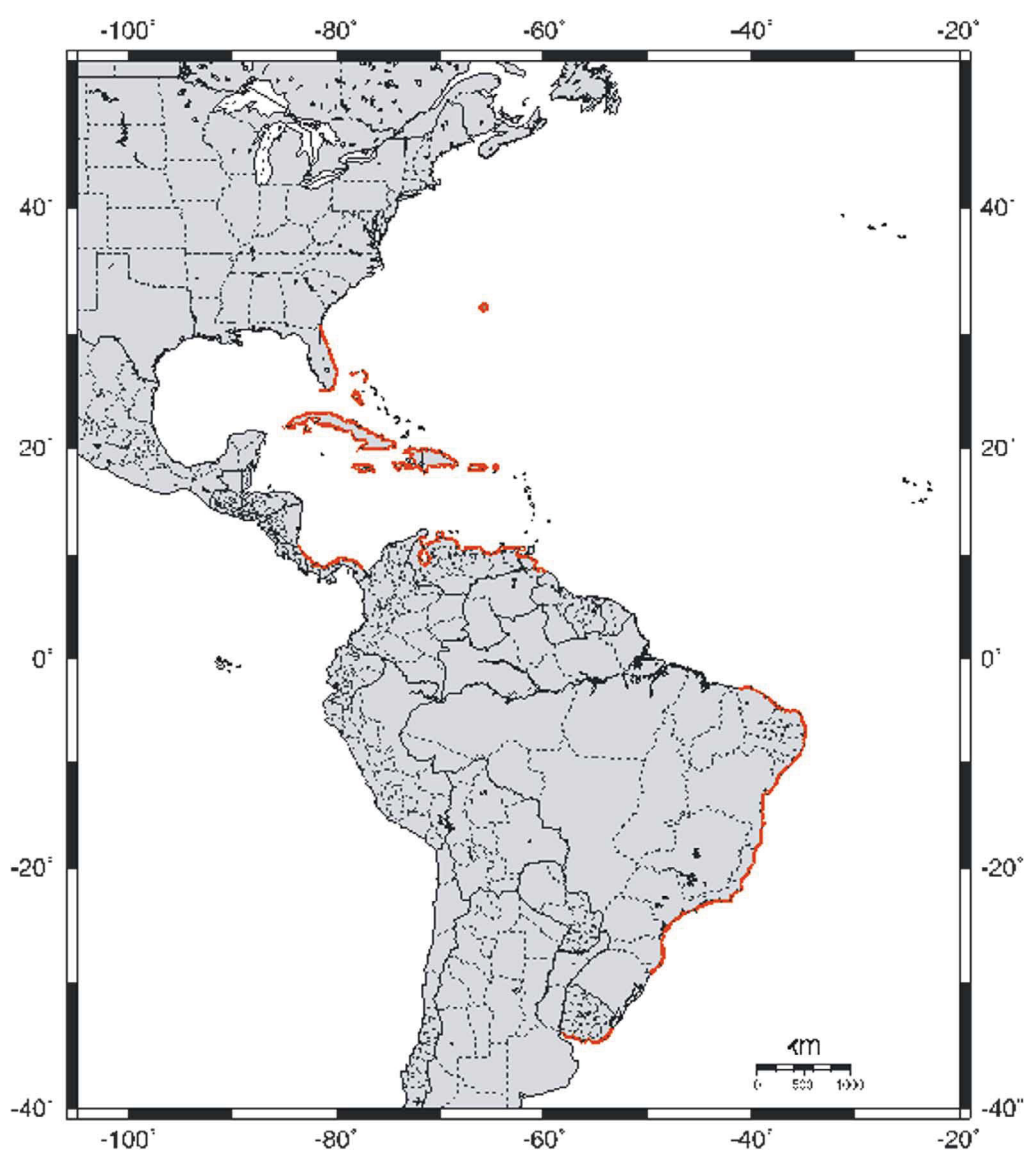


FIGURE 11. Distribution of *Palaemon northropi* (Rankin, 1898).

**Diagnosis.** Rostrum with distal portion curved upward, reaching beyond scaphocerite, dorsal margin with 7 to 9 teeth, first 3 teeth behind orbit, ventral margin with 3 or 4 teeth. Second pair of pereopods overreaching



scaphocerite with entire chela, fingers shorter than palm, cutting edge of dactylus bearing a small tooth at proximal part.

**Distribution.** Western Atlantic Ocean: USA (Florida), Bermudas, Panama, Bahamas, Cuba, Jamaica, Haiti, Dominican Republic, Puerto Rico, Virgin Islands, Bermudas, Venezuela, Brazil (Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina), Uruguay.

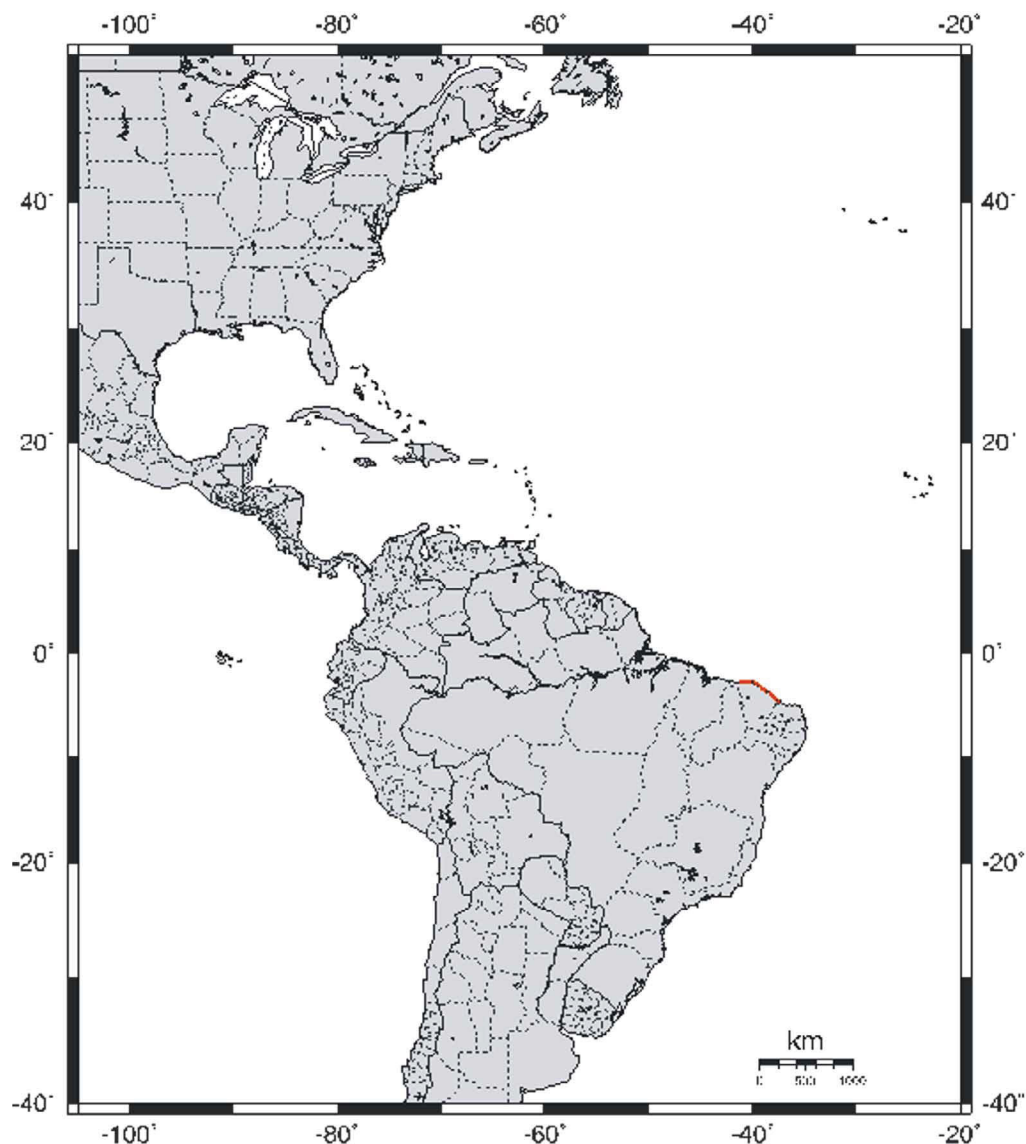
***Palaemon paivai* Fausto-Filho, 1967**

*Palaemon (Palaemon) paivai* Fausto-Filho, 1967: 19; Coelho & Ramos, 1972: 145; Ramos-Porto & Coelho, 1998: 336. *Palaemon paivai* Coelho *et al.*, 2006: 50.

**Material examined.** CEARÁ: Fortaleza, Praia do Meireles, 1 ovigerous female, (MZUSP-8963).

**Diagnosis.** Rostrum high, with lateral marked by a longitudinal saliency, apex slightly directed upward, reaching or overreaching end of scaphocerite, dorsal margin with 9 or 10 teeth, first 2 teeth behind orbit, ventral margin with 2 or 3 teeth. Second pair of pereopods overreaching scaphocerite with half of fingers, fingers slightly shorter than palm, carpus shorter than merus.

**Distribution.** Ceará.



**FIGURE 12.** Distribution of *Palaemon paivai* Fausto-Filho, 1967.

***Palaemon pandaliformis* (Stimpson, 1871)**

*Leander pandaliformis* Stimpson, 1871: 66.

*Palaemon (Leander) pandaliformis* Thallwitz, 1892: 12.

*Palaemon (Palaemon) pandaliformis* Holthuis, 1950a: 7, 1952: 187; Chace, 1972: 21; Coelho & Ramos, 1972: 145; Bond-Buckup & Buckup, 1989: 893, 1999: 314; Ramos-Porto & Coelho, 1998: 336; Melo, 2003: 376; Almeida *et al.*, 2006: 8.

*Palaemon pandaliformis* Ramos-Porto, 1980: 296; Costa *et al.*, 2000: 779; Coelho *et al.*, 2006: 50.

**Material examined.** CEARÁ: Fortaleza, Rio Cocó, 3 males, 3 females, (MNRJ-15345); PERNAMBUCO: Pernambuco, 1 male, 1 female, 4 ovigerous females, (MNRJ-1045); ESPÍRITO SANTO: São Mateus, Lagoa Juparanã, 3 females, 4 ovigerous females, (MNRJ-1041); Linhares, Lagoa Juparanã, 9 females, 1 indeterminate, (MZUSP-735); Linhares, Lagoa Nova, 17 males, 9 females, 32 ovigerous females, 9 indeterminate, (MZUSP-740); RIO DE JANEIRO: Lagoa do Campelo, 1 male, (MNRJ-2291); Rio Paraíba, 6



**FIGURE 13.** Distribution of *Palaemon pandaliformis* (Stimpson, 1871).

males, (MZUSP-1955); Rio Paraíba, 5 males, 3 females, 11 ovigerous females, (MZUSP-1956); Pavuna, Rio Pavuna, 2 males, 1 female, 3 ovigerous females, (MNRJ-1040); Rio de Janeiro, Barra da Tijuca, 3 ovigerous females, (MNRJ-998); Rio Mambucaba, Rodovia Rio-Santos, 1 male, 2 females, (MNRJ-4402); Rio do Frade, Rodovia Rio-Santos, 4 males, 14 females, 1 ovigerous female, (MNRJ-976); Angra dos Reis, Rio Saco, 5 males, 1 female, (MNRJ-893); Angra dos Reis, Praia do Frade, 12 males, 4 females, 2 ovigerous females, (MNRJ-1038); SÃO PAULO: Pariqueira-Açu, (24°37'87"S, 47°44'43"W), 5 males, 2 females, 7 ovigerous females, (MZUSP-15800); Praia das Pitangueiras, Riacho do Canto, 4 males, 5 females, 2 ovigerous females, (MZUSP-11078); Ubatuba, Rio Indaia, 8 males, 10 females, 22 ovigerous females, (MZUSP-7470); Ilha Comprida, Rio Capivarú, 5 males, 4 females, 3 ovigerous females, (MZUSP-13949); Cananéia, 2 females, 2 ovigerous females, (MZUSP-13595); Cananéia, 2 females, 1 ovigerous female, 4 indeterminate, (MZUSP-6488); Ilha do Cardoso, Rio Pedro Luiz, 3 males, 2 females, (MZUSP-13932); PARANÁ: Baía de Paranaguá, 2 indeterminates, (FURG-2308); SANTA CATARINA: Praia do Perequê, 2 males, 4 females, (MNRJ-1044); Florianópolis, 3 ovigerous females, (MZUSP-9086); RIO GRANDE DO SUL: Tramandaí, Lagoa da Custódia, 9 males, 6 females, (FURG-2478).

**Diagnosis.** Rostrum slender, having distal part slightly directed upwards, overreaching scaphocerite, dorsal margin with 5 to 7 teeth at proximal part and 1 or 2 teeth at distal part, ventral margin with 5 to 8 teeth. Second pair of pereopods reaching with half of carpus beyond scaphocerite, fingers shorter than palm, carpus longer than merus.

**Distribution.** Western Atlantic Ocean: Guatemala, Nicaragua, Panama, Cuba, Porto Rico, Virgin Islands, Barbados, Venezuela, Trinidad e Tobago, Brazil (Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul).

### *Palaemon ritteri* Holmes, 1895

*Palaemon Ritleri* Holmes, 1895: 579.

*Palaemon ritteri* Kingsley, 1899: 37.

*Palaemon (Palaemon) ritteri* Holthuis, 1950a: 8, 1952: 173; Gomes-Correa, 1980: 259; Ramos-Porto & Coelho, 1990: 98, 1998: 336.

**Material examined.** PARÁ: São João de Pirabas, Ilha de Fortaleza, 9 males, 8 females, 2 ovigerous females, (MNRJ-1037); CEARÁ: Fortaleza, Praia do Morro Branco, 1 ovigerous female, (MNRJ-1036).

**Diagnosis.** Rostrum high, overreaching scaphocerite, dorsal margin with 8 to 10 teeth, first 2 teeth behind orbit, ventral margin with 3 teeth. Second pair of pereopods longer than first pair, reaching scaphocerite, fingers shorter than palm, dactyl with 2 teeth at proximal part of cutting edge, fixed finger bearing a tooth, which is placed between 2 teeth of dactyl, carpus shorter than merus.

**Distribution.** Western Atlantic Ocean: Panama, Venezuela, Brasil (Pará, Ceará). Oriental Pacific Ocean: USA (California), Mexico, Panama, Colombia, Ecuador (Galápagos Islands), Peru.

### *Palaemonetes* Heller, 1869

*Palaemonetes* Heller, 1869: 157; Holthuis, 1952: 199; Chace, 1972: 12; Williams, 1984: 71.

**Diagnosis.** Rostrum with teeth on dorsal and ventral margins. Carapace with antennal and branchiostegal spines. Mandible without palp. Maxillipeds with exopods. Dactyli of pereopods 3 to 5 simple. Telson with two pairs of dorsal spines and two pairs of spines on the posterior margin.



FIGURE 14. Distribution of *Palaemon ritteri* Holmes, 1895.

***Palaemonetes argentinus* Nobili, 1901**

*Palaemonetes argentinus* Nobili, 1901: 3; Ramos-Porto & Coelho, 1998: 336.

*Palaemon brasiliensis* Sawaya, 1946: 397.

*Palaemonetes (Palaemonetes) argentinus* Holthuis, 1950a: 10, 1952: 224; Bond-Buckup & Buckup, 1989: 894, 1999: 315; Melo, 2003: 380.

**Material examined.** SANTA CATARINA: Florianópolis, Rio Ratones, 1 female, 1 ovigerous female, (MZUSP-9089); RIO GRANDE DO SUL: Capão da Canoa, Barra João Pedro, (29°44'S, 50°09'W), 30 males, 30 females, (FURG-99); Osório, Lagoa dos Quadros, 1 female, (MZUSP-8964); Tramandaí, 1 female, (FURG-2431); São Lourenço, 11 males, 16 females, (FURG-472); Pelotas, Lagoa dos Patos, (31°44'S, 52°08'W), 9 males, 7 females, (FURG-156); Pelotas, Lagoa dos Patos, (31°47'S, 52°11'W), 9 males, 11 females, (FURG-158); Canal São Gonçalo, 1 female, 2 ovigerous females, (FURG-3068); Canal São Gonçalo, 2 females, (FURG-3079); Canal São Gonçalo, 1 male, 1 female, 2 ovigerous females, (FURG-



3074); Ilha da Torotama, 1 female, (FURG-1985); Ilha da Torotama, 1 female, (FURG-1986); Ilha da Torotama, 1 female, (FURG-1987); Lagoa dos Patos, (31°42'S, 52°04'W), 23 males, 16 females, (FURG-164); Lagoa dos Patos, (31°44'S, 52°08'W), 7 males, 20 females, (FURG-159); Lagoa dos Patos, Saco do Arraial, 5 females, (MNRJ-4406); Lagoa dos Patos, Saco do Rincão, (31°49'S, 52°01'W), 2 males, 10 females, (FURG-160); Lagoa dos Patos, Saco da Mangueira, (32°06'S, 52°09'W), 4 males, 5 females, (FURG-162); Lagoa dos Patos, Saco do Arraial, (32°06'S, 52°08'W), 7 males, 14 females, (FURG-163); Estrada Rio Grande - Camaquã, 10 males, 8 females, (FURG-470); Estrada Senandes, km 33, 1 female, (FURG-545); Lagoa dos Patos, Rincão, 21 males, 15 females, (FURG-161); Lagoa da Quinta, Arroio Vieira, 4 males, 4 females, (FURG-476); Taim, km 2 lado oeste da estrada, 35 indeterminate, (FURG-2105); Taim, Lagoa Mirim, 10 males, 10 females, (FURG-475); Santa Vitória do Palmar, 10 males, 10 females, (FURG-466); Santa Vitória do Palmar, 10 males, 10 females, (FURG-468); Estrada Rio Grande – Chuí, 21 males, 20 females, (FURG-467); Arroio Chuí, 3 males, 8 females, (FURG-469); Arroio Chuí, 5 males, 1 ovigerous female, (FURG-2794); Argentina. Argentina, 18 males, 29 females, (FURG-473); Chascomús, 1 male, 1 female, 3 ovigerous females, 3 indeterminate, (MNRJ-1076).

**Diagnosis.** Rostrum straight and high, slightly overreaching scaphocerite, dorsal margin with 6 to 10 teeth regularly spaced, first tooth behind orbit, ventral margin with 2 or 3 teeth. Mandible without palp. Second pair of pereopods overreaching scaphocerite with fingers or part of palm, fingers shorter than palm.

**Distribution.** Western Atlantic Ocean: Brazil (Santa Catarina, Rio Grande do Sul), Uruguay, Argentina.

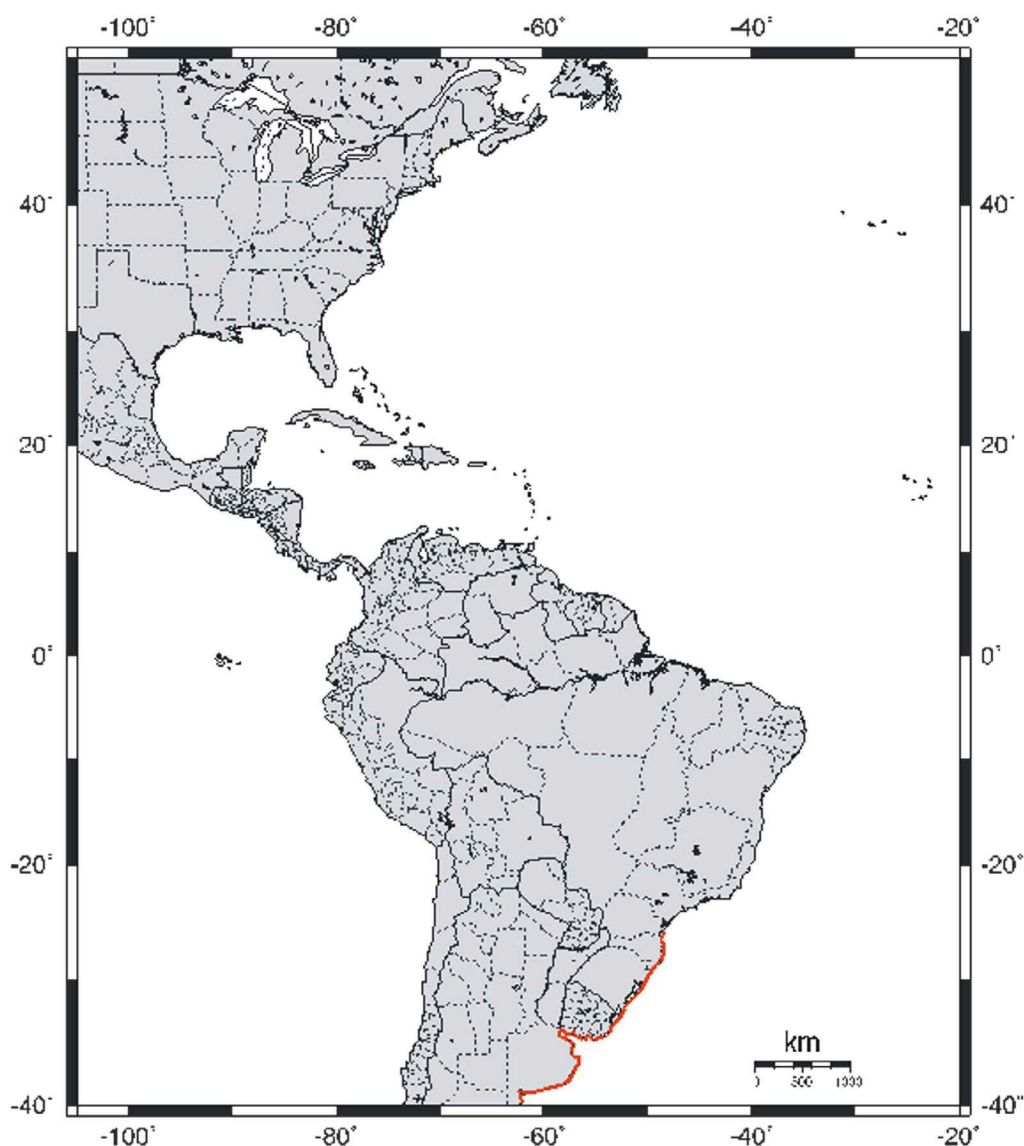


FIGURE 15. Distribution of *Palaemonetes argentinus* Nobili, 1901.

## Identification key

- 1 Carapace with hepatic spine ..... 2
- Carapace without hepatic spine ..... 6
2. Dactyli of pereopods 3 to 5 bifid ..... *Brachycarpus*....(3)
- Dactyli of pereopods 3 to 5 simple ..... *Macrobrachium*....(4)
3. Dorsal spines of telson not placed sidelong..... *B. biunguculatus*
- Dorsal spines of telson placed well sidelong.....*B. holthuisi*
4. Rostrum long, overreaching apex of scaphocerite.....*M. acanthurus*
- Rostrum short, not overreaching apex of scaphocerite..... 5
5. Second pair of pereopods with carpus distinctly shorter than merus ..... *M. carcinus*
- Second pair of pereopods with carpus as long as merus..... *M. olfersii*
6. Mandible without palp ..... *Palaemonetes argentinus*
- Mandible with palp ..... 7
7. Rostrum with teeth placed basal crest..... *Nematopalaemon schmitti*
- Rostrum without a basal crest..... 8
8. Carapace without branchiostegal depression ..... *Leander*....(9)
- Carapace with branchiostegal depression ..... *Palaemon*....(10)
9. Basal segment of antennular peduncle with convex anterior margin, and small stylocerite.....*L. paulensis*
- Basal segment of antennular peduncle with concave or straight anterior margin, long stylocerite ..... *L. tenuicornis*
10. Mandibular palp with two articles ..... *P. northropi*
- Mandibular palp with three articles ..... 11
11. Second pair of pereopods with carpus longer than merus ..... *P. pandaliformis*
- Second pair of pereopods with carpus shorter than merus ..... 12
12. Second pair of pereopods overreaching apex of scaphocerite with half of fingers..... *P. paivai*
- Second pair of pereopods just reaching apex of scaphocerite. .... *P. ritteri*

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